DOCUMENT RESUME

ED 286 062 CE 048 393

AUTHOR	Wilson, R.; Hooper, P.
TITLE	Computer Assisted Learning in Basic Adult Education. Commissioned Research.
INSTITUTION	TAFE National Centre for Research and Development, Payneham (Australia).
REPORT NO	ISBN-0-86397-018-4
PUB DATE	Dec 86
NOTE	14p.; Appendix containing survey data is not included in this document.
AVAILABLE FROM	Nelson Wadsworth, P.O. Box 4725, Melbourne, Victoria, 3001, Australia.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Adult Education; *Computer Assisted Instruction; Courseware; *Directories; Foreign Countries; Information Dissemination; *Information Networks; *Material Development; Media Selection; *Microcomputers; National Surveys; Postsecondary Education
IDENTIFIERS	*Australia; TAFE (Australia)

ABSTRACT

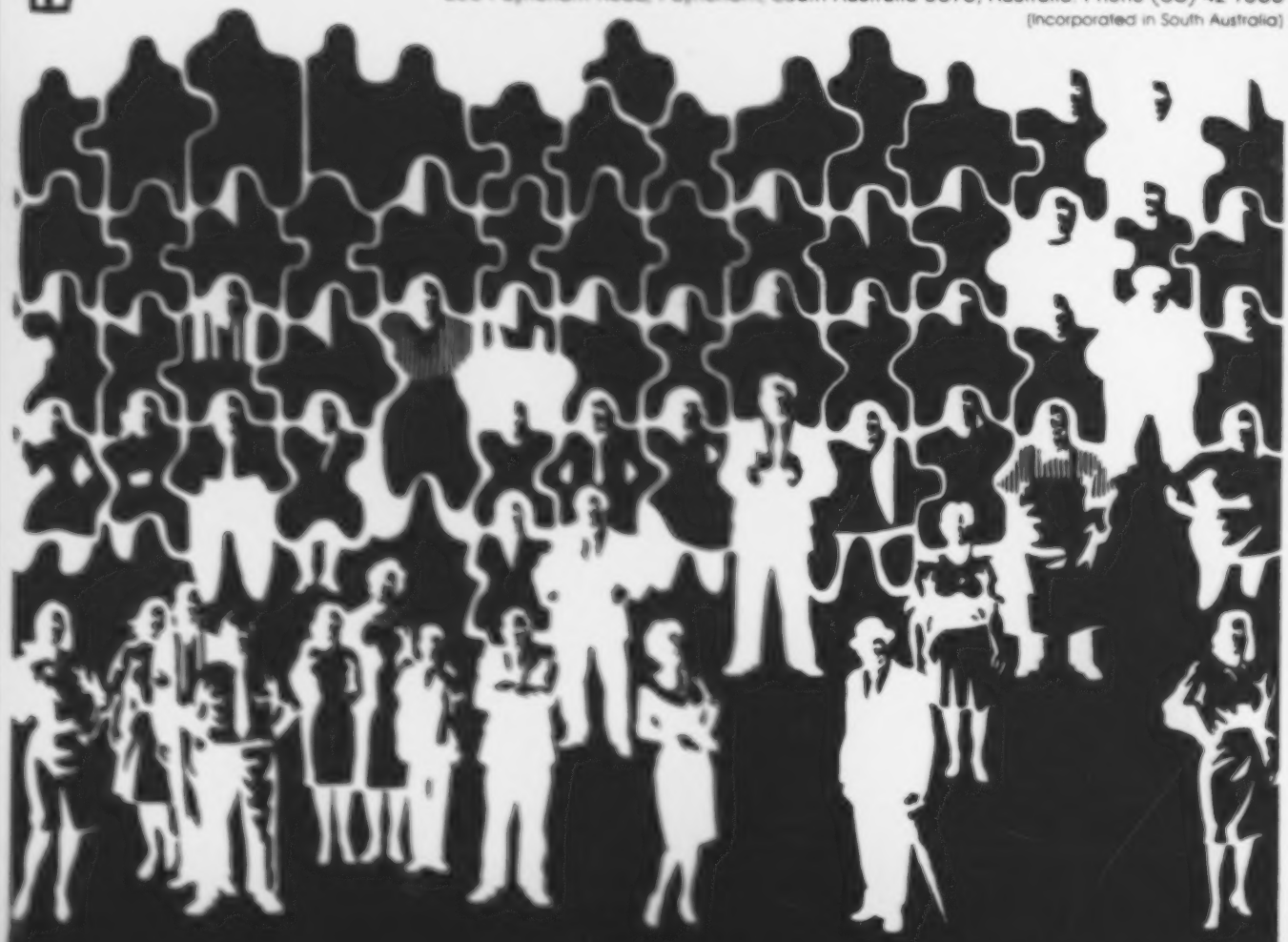
A project was conducted to increase the use of microcomputers in basic adult education in Australia. The aims of the project were as follows: to establish an information network of practitioners working within Australia's Technical and Further Education (TAFE) system who have an interest in using computer-assisted learning in basic adult education; to collate a human resources directory and a register of computer hardware and software materials presently in use at TAFE institutions throughout Australia; to prepare and disseminate an information bulletin/newsletter that would assist practitioners in using computer-assisted learning in basic adult education; and to select and evaluate computer software packages presently in use in basic adult education throughout Australia. After having accomplished the first two project objectives, the project team developed the following recommendations for staff and students involved in basic adult education programs into which computer-assisted learning is being introduced: teachers and learners should spend time becoming familiar with the particular hardware being used; program managers should be sure that stand-alone packages are purchased along with hardware; authoring packages should only be considered if extensive teacher inservice and student workshops are provided; and managers should be prepared to make additional resources available to system operators once they have become well advanced. (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED286062

TAFE

TAFE NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT LTD.
296 Payneham Road, Payneham, South Australia 5070, Australia. Phone (08) 42 7905
(Incorporated in South Australia)



COMMISSIONED RESEARCH

December 1986

COMPUTER ASSISTED LEARNING IN BASIC ADULT EDUCATION

U.S. DEPARTMENT OF EDUCATION
(Office of Educational Research and Improvement)
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
N Jones
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Prepared by: R Wilson, Project Manager, P Hooper, Project Officer, Adelaide College of Ltr. SA

BEST COPY AVAILABLE

TAFE NATIONAL CENTRE FOR
RESEARCH AND DEVELOPMENT

COMPUTER ASSISTED LEARNING IN BASIC ADULT EDUCATION

R. WILSON
&
P. HOOPER

ADELAIDE 1986

©TAFE National Centre for Research
and Development Ltd., 1986

ISBN 0 86397 018 4 (Hard)
TD/TNC 14.2

Edited by: M. Cominos

Published by:

TAFE National Centre for
Research and Development
296 Payneham Road
Payneham SA 5070

(Incorporated in South Australia)

Distributed by Nelson Wadsworth, PO Box 4725, Melbourne VIC 3001,
for TAFE National Centre for Research and Development Ltd.

Printed by D. J. WOOLMAN, Government Printer, South Australia

COMPUTER ASSISTED LEARNING IN BASIC ADULT EDUCATION

Contents

Introduction	1
The Project	3
General Impression of the Project Team	5
Recommendations	9
Human Resources Directory	11

COMPUTER ASSISTED LEARNING IN BASIC ADULT EDUCATION.

Introduction.

In discussions concerning the impact of computers on traditional education, considerable confusion is possible because their effects can be observed and experienced in different ways.

In the first instance, computers have created new curriculum study areas. Educators now teach students about computers - what they do, what impact they may have on society, and what jobs have been changed because of the advent of these machines. Educators can also instruct students on how to drive and manage a particular facility. Students can become expert in the programming of computers by undertaking courses of study.

In the second instance, students can be shown the applications of the computer to support various activites relating to a job or trade. Word processing, financial management, calculations, information storage and retrieval can be taught, to enhance the work skills of an individual.

In the third instance, a computer facility can be developed as a support to or replacement for a human instructor. Terms such as Computer based learning (CBL) and Computer assisted instruction (CAI) are applied when a set course of study is presented by means of a computer facility. In general, the user has little control over the type or order of presentation of the material.

Computer assisted learning (CAL) is an attempt to broaden the above definitions by including some "student control" over the learning process. The theory and practice of CAL has been operational in Australia for some years. However, the overall strategy has never been promoted, and while some individual teaching situations have included CAL practices, generally teacher resistance and the perceived lack of suitable materials (hardware, software) have limited the exposure of students to this teaching methodology.

It can be said that educators in general appear to have a "love-hate" relationship with the computer. Those teachers who have been introduced to the scope and functions of the computer regard this tool as just another resource in their repertoire of teaching skills. There is no reason why computers should put teachers out of work any more than the other range of accepted audio-visual resources. However,computer programmes carefully developed and introduced can help student groups learn effectively and offer choice as to the speed and efficiency of a particular learning task.

To quote a noted educationalist - "If you think you can be replaced by a computer, you probably should be".

Computers do some tasks with precision, through CAL. For instance, the computer can help a student learn by programmes that apply drill and practice, mechanically question and answer in a multiple choice format, or any other practice sequence that is involved with the application of rigid rules and memory games.

While most educators have seen or heard of these types of programmes, the computer is capable of more imaginative tasks requiring more time and care to develop. As micros become cheaper and bigger in terms of memory, applications which could not have been dreamed of five years ago become possible. For instance, innovative and confident educators have found that the micro can handle most tasks involving the manipulation of text including the complete freedom of the word-processor function. These activities have major implications for the teaching of reading and writing to both adults and children.

Microcomputers also have other talents in unexpected areas. For instance, a problem for all teachers, particularly where classes are large, is the difficulty of promoting discussion between groups of students. Interestingly, a computer or set of computers can carry out the simple task of "ideas promoter", providing a focus for discussion and throwing up new challenges as and when the group needs them.

In summary, then, the use of the computer as a teaching/learning resource is limited only by the imagination and skills of the educator involved. The application of a computer system to a particular learning environment should enhance the teaching/learning that takes place and should ensure that all participants benefit from the experience. If these new technologies are seen as opportunities rather than as impositions then students will develop positive attitudes towards them, as well as towards the whole learning process.

THE PROJECT

In Australia the use of micro computers in adult education has been limited by a lack of resources and teacher inservice training.

The overall objective of this project was to review the use of CAL in adult basic education and to gauge awareness of the potential for the integration of this teaching resource into learning programmes.

A $12,500 grant was made available in April 1985, by the TAFE National Centre for Research and Development to the Adelaide College of TAFE to undertake commissioned research into CAL in basic adult education. The aims and objectives of the research were as follows:

(1) To establish an information network of practitioners working within TAFE Australia, who have an interest in CAL in basic adult education.

(2) To collate a human resources directory and a register of computer hardware and software materials presently in use within institutions of TAFE throughout Australia.

(3) To prepare and disseminate an information bulletin/newsletter that would assist practitioners in their use of CAL in basic adult education.

(4) To select and evaluate computer software packages presently in use in basic adult education throughout Australia.

The outcomes of objectives (1) and (2) are contained in this document.

A national newsletter entitled Australian TAFE Computing Notes has been circulated in 1986 and further copies will be prepared by the TAFE National Centre in the future.

The software evaluations prepared by the project team are available in a separate folder entitled Software Evaluations - Computer Assisted Learning in Basic Adult Education.
The project team concluded its work in June 1986.

GENERAL IMPRESSIONS OF THE PROJECT TEAM

In undertaking this commissioned research, the project team has arrived at some conclusions about CAL in basic adult education as it operates now within the TAFE sector.

It has become obvious that many teachers/learners have been introduced in a very limited way to the possibilities of CAL in basic adult education. Throughout each State and Territory of Australia, individual adult literacy and basic adult education programmes are undertaking some interesting and exciting work in the integration of computers into teaching and learning programmes. However, no one authority or department has prepared an overall strategy for the future development and support of CAL in basic adult education.

Results of our surveys and research have indicated that most teachers consider "student control" over the content and strategy of the teaching programme as most desirable. This student control should include the application of the new technology. The great advantage that certain computer programmes have over text is that they can be developed to interpret the student's response and decide what action to take, whether to offer further tuition, or repeat previous information, or to offer an evaluative comment. Programmes via the computer have the ability to provide immediate feedback to the student.

Our evaluation process, developed via the project, was influenced by the student control concept. For instance, programmes that had easy access to an index of content or a content map, or an ability at any time to escape or skip forward or back a chosen amount, were evaluated very positively. We were also influenced in terms of the overall strategy of certain packages, where the student was able to: see examples, do exercises, receive information, consult a glossary of terms, ask for an explanation and take a test. Commercial or inhouse products that considered these issues were recommended.

The project team has concluded that the following activities should be undertaken by staff and students when introducing CAL into an adult education programme.

1. Teachers and learners should spend time getting to know the particular hardware that has been installed. It is not overly important what brand of micro computer might be made available or the capacity of the particular machine. It is more important that the users feel comfortable with the resource, making sure they are in control and at ease. Staff development time and special introductory student programmes need to be made available immediately the machine is installed.

2. Managers of programmes should ensure that "stand alone" packages are purchased along with the hardware. Simple drill and practice programmes assist both student and teacher to become familiar with the operating procedures of the machine. Once a student or teacher is confident with a particular software package, new and more challenging materials should be released into the classroom. The whole process of introducing computers and programmes should not be hurried. Until all operators feel confident and "in control", other more advanced applications should be shelved.

3. Through extensive inservice and student workshops, authoring packages may then be considered. The project team recommends that, wherever possible, these packages when introduced should include some prepared samples of programmes. It is obvious that programme makers feel more confident with authoring packages where new or revised data can be added onto an existing structure rather than working on a totally blank grid.

Introductory authoring packages for most hardware should follow a strategy similar to a traditional teaching sequence.

(1) student sees examples

(2) student practises some examples

(3) student does some exercises while receiving information.

(4) student must be able to consult a glossary of terms.

(5) student is finally able to do a test and gain a result.

4. Once a group is well advanced, managers should be prepared to make available resources to certain interested and skilled operators so they can become expert

in an appropriate authoring language applicable to the hardware available. Authoring language refers to packages where a simplified computer language is used to write a whole range of learning/teaching resources including advanced graphics.

While authoring languages have been used rarely by programme developers in basic adult education in the creation of learning packages at this time, the next few years will probably see major new initiatives in the use of these important technologies. Programme managers need to be aware that more preparation time and programme resources need to be made available if CAL and basic adult education are to take full advantage of such resources.

The project team has also considered the use of word processing as a teaching strategy for basic adult education. Our conclusion is that word processing packages are enough reason to have all major literacy programmes in Australia purchase and use computers as a resource for new adult learners. Word processing techniques appear to change reluctant adult learners' attitudes to the process of writing. With few keyboard skills, students can be exposed to this valuable resource. The ease of editing and the "error control" are major advantages. Students begin to view writing as an ongoing process and the printed outputs are highly valued by their authors. The students' expectations of their own worth as users of the language are considerably enhanced.

The general impressions of the project team in relation to CAL in basic adult education are that much more needs to be done to encourage teachers and students to feel comfortable with the use of computers as an adjunct to a learning programme. While resources, overall planning and support remain limited, the process of integrating CAL strategies into ongoing teaching services will continue to be spasmodic and unrewarding.

RECOMMENDATIONS

The following recommendations detail future directions for research and evaluation in CAL in basic adult education.

1. The project team believes that adult education authorities, including TAFE, should develop strategies for the implementation of CAL in basic adult education.

2. The project team recommends that state authorities should provide capital grants to literacy/numeracy programmes for the provision of suitable hardware and software computer resources. Funding allocations should include significant staff development resources and software preparation time.

3. While it is recognised that new machines will continue to be made available within the TAFE network, the project team believes that valuable work can still be undertaken on a range of computers made available to literacy programmes.

4. Departments should have particular purpose grants made available for the development of software for all machines actively in use within a state or regional network.

5. The project team recommends that local networks of users be established to support individuals as they develop new skills and attitudes towards CAL in basic adult education.

6. The project team believes that software evaluation exercises should be undertaken by local user networks rather than large national projects. Packages should be reviewed quickly to aid in the decision about further purchases, while detailed evaluation should be done in consultation with students and teachers over a longer period of time. Evaluations can only be successful if long term trialling is included.

7. A national user information network should be encouraged through the recently released newsletter TAFE Computing Notes. The TAFE National Centre should continue as a central clearinghouse for information related to CAL.

HUMAN RESOURCES DIRECTORY

Register of Computing Hardware/Software Materials available to Basic Adult Education Programmes.

In October 1985, the project staff contacted all known adult literacy, basic adult education programmes and associated institutions requesting information on computer assisted learning activities related to the particular service.

Responses were collected on Information Sheets, and then collated via computer (See Appendix). The project staff obtained a data base software package entitled PC-file III (version 2.0) for the IBM PC. The author claims that the programme can be made "to run on virtually any MS-DOS machine" including non-IBM compatibles by a very simple modification. PC-file III is distributed under the user-supported concept and should be available from IBM PC User Groups. It costs approx. $49.00(US) and it has been found to be extremely user friendly.

The total responses received by the project team are included in this document. A draft copy of the data was published at the end of 1985, to assist the establishment of local and state networks.

Feedback to the project team has been very positive. It appears the draft listing has been used by operators wishing to gain detailed information on the particular programmes being trialled and evaluations on hardware suitability.

The following information key will assist readers to understand the nature of the teaching programme being offered and the hardware presently available.

College: This heading details the major educational institutions to which the programme is attached.

Unit/Branch: This heading indicates the local name of the facility, programme, teaching service in which CAL offerings are now available.

Address: ----------

Contacts: At the time of collection, the name(s) of the officer(s) to whom enquiries may be addressed.

Mainstream: Information under this heading relates to <u>other</u> institutions' offerings which centre upon computer studies or courses dealing with computer skills development.

Hardware: Information related to the brand name and/or the type of machine presently being used as CAL hardware in the direct teaching programme of the unit concerned.

Listed in the following section are the data collected during the survey. The information is grouped according to State and Territory and the institution concerned.

Please refer to microfiche attached to the folder for all survey data.